

# Conference Summary & Wrap-Up

## Bucknell Nutrition Conference

### 21:21 VISION

July 17-19, 2006

R. Tom Bass, II, DVM, PhD  
Renaissance Nutrition, Inc.



# Feeding for a Productive Life

Dr. Mike Hutjens

## Feed relations to Productive Life

- Controlling rumen acidosis & secondary disorders
- Controlling periparturient diseases
- Foot health
- Getting cows pregnant
- Maintaining immunity & health
- Meeting energy needs



# Feeding for a Productive Life

Dr. Mike Hutjens

Goal for herd avg. lameness score (HALS): <1.4

<u>HALS</u>	<u>\$ Loss/Cow</u>
1.8	\$62
2.1	\$82
2.5	\$115

Score 3 Cow: 2.8X risk of ↑ days to 1<sup>st</sup> service, 4X risk of being a score 4 next month, 5% less milk, 3% lower DMI vs. a score 1 cow.



# Metabolism, Nutrition & Immunity in Transition Cows

Dr. Tom Overton

- Goal: Consistent and moderately high DMI with a minimal drop before calving
  - Don't overfeed far-off dry cows
  - Enough energy, but not too much
  - One group of dry cows can be an advantage
  - Manage DCAD
  - Strategic use of nutritional tools
  - A little thinner is better
  - New pharmacological tool in development



# Metabolism, Nutrition & Immunity in Transition Cows

Dr. Tom Overton

- "Minimize broken cows..."
  - Typical values for above avg. NE dairy herds are 10-12% w/in first 60 DIM
- Beware averages for they can hide the real story. Take a more comprehensive look at cows and data when possible.
- CCT (Cornellian Technical Terminology)
  - "eating the snot"
  - "screwed"
  - "big 'ol whack"



# Finding \$200 as Milk Prices Drop

Dr. Mike Hutjens

- Know your feed costs: per cow per day, per lb DM, per CWT, IOFC and Feed Eff.
- Each 0.1 unit improvement in feed efficiency is worth approx. 20¢/cow/day



# Finding \$200 as Milk Prices Drop

Dr. Mike Hutjens

- Opportunities for improved profitability: feed costs, milk components, peak milk, SCC, AFC & heifer size, cull rate, herd avg. DIM, and BST
- Support the dairy industry AND Illinois grads: EAT MORE PIZZA



# Troubleshooting Milk Fat Problems on Dairy Farms

Dr. Tom Overton

- Most milk fat depression (MFD) occurs in a dose-dependent fashion as a result of specific trans fatty acids that are produced in the rumen. It is not a function of decreased production of butterfat precursors (i.e. acetate).
- MFD is "most often not one factor, but an interaction among many factors"



# Troubleshooting Milk Fat Problems on Dairy Farms

## Dr. Tom Overton

### Risk factors:

- Linoleic acid supply & availability in the rumen (vegetable oil, pasture)
- Any processing method that increases ruminal availability of unsaturated fatty acids
- Undesirable dynamics of rumen pH (from social, cow management, and feeding management effects)

### Maybes:

- Abnormal fermentations, high yeast or mold counts, high pH water(?), vit. E "deficiency"



# The Use of Gas Fermentation Technology as a Risk Assessment Tool

Mr. Jay Johnston

- The diet that is DIGESTED is the most important
- Starch digestibility (both rate & extent) probably varies more than you might think
- Beware too much rapidly fermentable CHO
- Predictive value of traditional feed/forage analyses is somewhat limited. Use gas analysis as a diagnostic tool to improve upon these limitations



**BLACK BEET PULP IS BAD!!**



# Design & Management of Freestall Housing for Dairy Cows

Dr. Dan Weary

- Lots of variation in stall usage, both between cows and across time
- Cows may not maximize lying time when standing surfaces are "foot friendly"
- Hardware in stalls are for human purposes. From a cow's perspective, the less hardware, the better
  - Removing brisket boards increases lying time by over an hour



# Design & Management of Freestall Housing for Dairy Cows

Dr. Dan Weary

- More bedding, less hardware
- Softer, drier flooring decreases hoof injuries which can lead to lameness
- Adopt a long-range time line when expecting a return on improvements in cow comfort.
  - Short term production responses typically aren't seen, unless lying times had been severely compromised



# Dairy Producer's Forum

Larry Jarvis, Teabow Farm

What he looks for in a dairy consultant:

- Honesty, integrity, trust
- Walk the walk, don't just talk the talk
- Eyes and ears on the farm and off
- Depth of support
- Someone who is genuinely interested in helping the dairy succeed
- "It's the little things that you do... little management changes"





# NE Dairy Trends

## Dr. David Galton

- Highest to lowest milk price swing is controlled by only a 1.5-2% change in milk supply
- Current driving force in the dairy industry: lower costs (\$1-2/cwt) of production in the west (volume, labor efficiency & diluted fixed costs)
- “We will have small dairies in the future,” but they will have to “look at other sources of income” (besides milk)- the current business model of “traditional” dairies is broken



# NE Dairy Trends

Dr. David Galton

$$\text{PROFIT (GROWTH)} = \frac{\text{volume} \times (\text{income} - \text{costs})}{\text{capital investment}}$$

- VOLUME is the variable over which producers have the greatest control. VOLUME drives the equation. Volume also influences costs via economies of scale.
  - IHG can also drive income/profit.
- US East Coast: 43% of the population... 31 BILLION lb milk deficit
- Definition of a Buckeye?
- For those of you who have purchased a new truck lately...



# NDF Digestibility: Conceptual & Analytical Challenges

Dr. Mike Allen

1 unit NDFD = +0.37 lb/day DMI and  
(in vitro or in situ) +0.55 lb/day FCM

- Only 13% of the variation in NDFD is explained by differences in DMI
- Herds w/higher milk yield & higher yielding cows w/in a herd benefit the most from ↑ ration NDFD
- Forage NDF limits intake more than non-forage NDF



# NDF Digestibility: Conceptual & Analytical Challenges

Dr. Mike Allen

## Symptoms of poor forage NDFD:

- Low cows: DMI increased
- High cows: DMI decreased
- Lower peak milk yield



# Dry Cow and Transition Heifer Management Checklists

Dr. Sam Leadley

- Utilize check lists for transition cow and transition calf management (and elsewhere)
  - Objective evaluation
  - Keeps discussions & evaluations on track
- Transitioning calves through weaning
  - Make gradual changes & spread out stressors
  - Don't change the feed when calves are grouped post-weaning



# A Partial Budget Approach to Choosing Corn Hybrids for Silage

Dr. Mike Allen

- A partial budget approach allows you to better select a more cost-effective hybrid for any given farm
  - It is not a “one size fits all” approach
  - Check out CornPicker® at the MSU web site



# Heat Stress in Dairy Cows

Dr. Brian Perkins



## How do you effectively cool cows in the eastern US?

- Soak the cow to the skin, blow air over the cow to dry her off, repeat...
  - Low pressure (20 psi) soaker system
  - Large droplets
  - Erdstrom controller to vary frequency
  - Fans, fans, fans
  - Orient barns east-west; 4-rows better than 6



# Heat Stress in Dairy Cows

Dr. Brian Perkins

- "Cow cooling will pay for itself in the first summer."
- Respiratory rates are a good proxy for body temperature
  - >80 breaths per minute equates with body temps.  $\geq 103^{\circ}\text{F}$



# Megalac-R Study

Ms. Bonnie Jones

- Results showed some theoretical promise for better repro performance (↑ # of cycles before 1<sup>st</sup> service)...
- ... but no actual difference in preg rates for Megalac-R treated vs. control cows



# Vitamin Update

Dr. Bill Weiss

- VITAMIN E- super high doses may help with milk fat depression on high PUFA diets
  - Grazing cattle- no supplemental E needed
- BIOTIN- "feed it" for foot health
- CHOLINE- will increase milk production, but is it cost effective
- NIACIN- data supporting its use for ketosis prevention is thin



# Vitamin Update

Dr. Bill Weiss

- VITAMIN C- some links to cow health (mastitis, pneumonia), must be rumen-protected, stay tuned
- "Don't hang your hat on one experiment."



# Preventing & Diagnosing Calf Scours

Dr. Sam Leadley

- New names on this year's list of academy award nominees?
- Calf scours is very often multifactorial
- Ask questions: When (age)? Intensity? Duration?
- "Adult cow manure is bad stuff" - no manure meals!
- Colostrum is **GREAT** stuff... **IF** it is managed & fed properly



# Preventing & Diagnosing Calf Scours

## Dr. Sam Leadley

- When doing an investigation, taking notes conveys sincerity & suggests a more thorough work-up of the problem
- Provide good management information-- value-added service



# Inorganic vs Organic Se for Dairy Cows

## Dr. Bill Weiss

- No cows should receive 100% of their dietary Se in the organic form
  - Multiple sources (of any nutrient) almost always better  
(different mechanisms of absorption/uptake)
- On average, cows fed Se-yeast will have:
  - ✓ 20% higher blood Se concs. and GSH-px activity
  - ✓ Better Se transfer to fetus
  - ✓ Increased colostrum, milk Se content
  - ✓ No differences found yet in immune response, repro. performance



# Inorganic vs Organic Se for Dairy Cows

Dr. Bill Weiss

## Feeding recommendations:

- Normal situation (low/no antagonism)- all inorganic Se
- Antagonists present (i.e. S, Fe)- predominantly organic Se
- Dry cows- some organic Se



# Living with Variation in Feed Composition

Dr. Bill Weiss

- Remember the question: “Do you have reason to believe something has changed” when deciding whether different values are truly different
  - If you're not sure, use the mean of 2+ samples
- Ingredients from single sources reduce variation
- Feeding more ingredients reduces dietary variation



# Living with Variation in Feed Composition

Dr. Bill Weiss

- The contribution of variance to the diet depends on ingredient quantity (inclusion rate in the diet)
  - Variance increases with the square of the inclusion rate
  - Doubling inclusion rate increases impact on variation 4X
- Optimum sampling design:
  - Take 2 independent samples each time, then balance with the averages of the results
  - The bigger the farm, the more frequently you should sample (small farms- every 3 weeks, large farms- every 5 days)- MORE OFTEN IS BETTER



# Seven Reasons Why Vaccines & Antibiotics Fail

## Dr. Sam Leadley

- Follow label directions for vaccine handling and mixing and prevent lots of "-itises"
- Consider boosting MLV vaccines at initial vaccination
- Separate stressors and vaccinations
- Antibiotics are the frosting on the immune system cake
- Follow veterinarian's recommendations for antibiotic administration and prevent even more "-itises"
- **CONSIDER WRITTEN PROTOCOLS**



# Some Traveling Advice...

That Highway Patrol Officer that just pulled you over for driving like an idiot -- his name is "Sir," no matter how young he is.

